LIST OF ACUTELY TOXIC CHEMICALS

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The chemicals included in this list are defined by the Occupational Health & Safety Administration (OSHA) as acutely toxic. OSHA considers these substances to have a high degree of acute toxicity based on the following effects:

- Oral LD_{50} of 50 mg/kg in albino rats, with a total dosage of 200 to 300 g.
- Air LC_{50} of 200 ppm (or 2 mg/l) in albino rats through continuous inhalation for 1 hour.
- Skin LD_{50} of 200 mg/kg in albino rabbits through continuous contact with bare skin for 24 hours.

Oral LD_{50} is the chemical's median lethal dose measuring 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams. Air LC_{50} is the chemical's median lethal concentration in air measuring 200 parts per million by volume or less of gas or vapor (or 2 mg/l or less of mist, fumes, or dust) when administered to albino rats by continuous inhalation for one hour (or less if death occurs). Skin LD_{50} is the chemical's median lethal dose measuring 200 milligrams or less per kilogram of body weight when administered to albino rabbits (weighing between 2 and 3 kg) by continuous contact with bare skin for 24 hours (or less if death occurs).

For further information about acutely toxic chemicals, consult the *Code of Federal Regulations*, Title 29, Part 1910.1200. You may also contact the Health Services Department or your ES&H Team Industrial Hygienist.

Acutely Toxic Chemicals

Chemical	CAS number	Oral LD_{50} (rat)	Inhalation LC_{50} (rat)	Skin LD_{50} (rabbit)
Arsenic acid	1303-28-2	48 mg/kg	—	—
Arsine	7784-42-1	—	122 ppm or 390 mg/m^3 in 10 minutes	—
Cadmium	7440-43-9	—	5.5 ppm or 25 mg/m^3 in 30 minutes	—
alpha-Chloroacetophenone	532-27-4	50 mg/kg	70 ppm or 417 mg/m^3 in 15 minutes	—
Dichlorophenylarsine	696-28-6	—	—	5 mg/kg
Dichlorosilane	4109-96-0	—	215 ppm[a]	—
Fluorine	7782-41-4	—	185 ppm in 1 hour	—
Formaldehyde gas	50-000-0	—	166 ppm or 203 mg/m^3[3a]	270 ul/kg
Hydrazine, anhydrous	302-01-02	—	26 ppm or 34 mg/m^3[3a]	—
Hydrogen cyanide, anhydrous	74-90-8	1.5 mg/kg	160 ppm in 30 minutes	—
Lewisite	541-25-3	—	—	4 mg/kg
Mechlorethamine	51-75-2	10 mg/kg	—	12 mg/kg
Mercuric chloride	7487-94-7	1 mg/kg	—	—
Mustard gas	505-60-2	—	15 ppm or 100 mg/m^3 in 10 minutes	40 mg/kg
Nickel carbonyl	13463-39-3	—	35 ppm in 30 minutes	—
Ozone	10028-15-6	—	4.8 ppm in 4 hours	—
Parathion	56-38-2	2 mg/kg	1.3 ppm or 84 mg/m^3 in 4 hours	15 mg/kg
Phenol	108-95-2	—	82 ppm or 16 mg/m^3[3a]	—
Phosphine	7803-51-2	—	11 ppm in 4 hours	—
Phosphorous trichloride	7719-12-2	18 mg/kg	—	
Phosphorus, white, molten	7723-14-0	3 mg/kg	—	—
Potassium cyanide	151-50-8	5 mg/kg	—	—
Sarin	107-44-8	0.5 mg/kg	—	0.9 mg/kg
Selenium	7782-49-2	—	10 ppm in 8 hours	—
Sodium cyanide	143-33-9	6.4 mg/kg	—	—
Sodium Fluoride	7681-49-4	52 mg/kg	—	—
Tabun	77-81-6	3.7 mg/kg	—	2.5 mg/kg

[a] No time period specified.

Other Chemicals of Concern—Available rat data

Chemical	CAS number	Oral LD_{50} (rat)	Inhalation LC_{50} (rat)	Skin LD_{50} (rabbit)
o-Chloro-benzylidene malononitrile	2698-41-1	—	225 ppm or 1806 mg/m^3 in 45 minutes	—
Chloropicrin	76-06-2	—	14 ppm in 4 hours	—
Diborane	19287-45-7	—	40 ppm in 4 hours	—
Nitrogen dioxide	10102-44-0	—	88 ppm in 4 hours	—

Additional Chemicals of Concern—Unavailable rat data

Phosgene (75-44-5):

- Human LCLo = 50 ppm in 5 minutes inhalation; human LCLo = 360 mg/m^3 in 30 minutes inhalation.
- Mammal LCLo = 50 ppm in 5 minutes inhalation; mammal LCLo = 11 mg/m^3 in 30 minutes inhalation.

Soman (96-64-0):

- Human LCLo = 70 mg/m^3.
- Human LDLo = 18 mg/kg contact with skin.
- Rat intraperitoneal LD_{50} = 98 ug/kg.
- Rat subcutaneous LD_{50} = 71 ug/kg.
- Rat intravenous LD_{50} = 44.5 ug/kg.
- Rat intramuscular LD_{50} = 62 ug/kg.

VX (50782-69-9):

- Human oral TDLo = 4 ug/kg.
- Human skin LDLo = 86 ug/kg.
- Rat subcutaneous LD_{50} = 12 ug/kg.

Diphenychloroarsine (712-48-1):

- Human inhalation LCLo = 55 ppm in 30 minutes.

Diphenylamine chloroarsine (578-94-9):

- Human inhalation LCLo = 54 ppm in 30 minutes.

Other chemicals being investigated—Insufficient data or do not meet OSHA requirements for acute toxicity

Dimethyl mercury: no data available.

Toulene Diisocyanate (mixed isomers):

- Rat oral LD_{50} = 4130 mg/kg.
- Rat inhalation LCLo = 600 ppm in 6 hours.

Methyldichloroarsine: no data available but targets blood, immune system (sensitizer), and nervous system.

Chlorine:

- Rat inhalation LC_{50} = 293 ppm in 1 hour.